

**WATER RESOURCE REPORT
EAST SLOPE, SNAKE RANGE, NEVADA-UTAH**



Baker Creek, Great Basin National Park, 10/04

Prepared for:

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**WATER RESOURCE REPORT
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Introduction

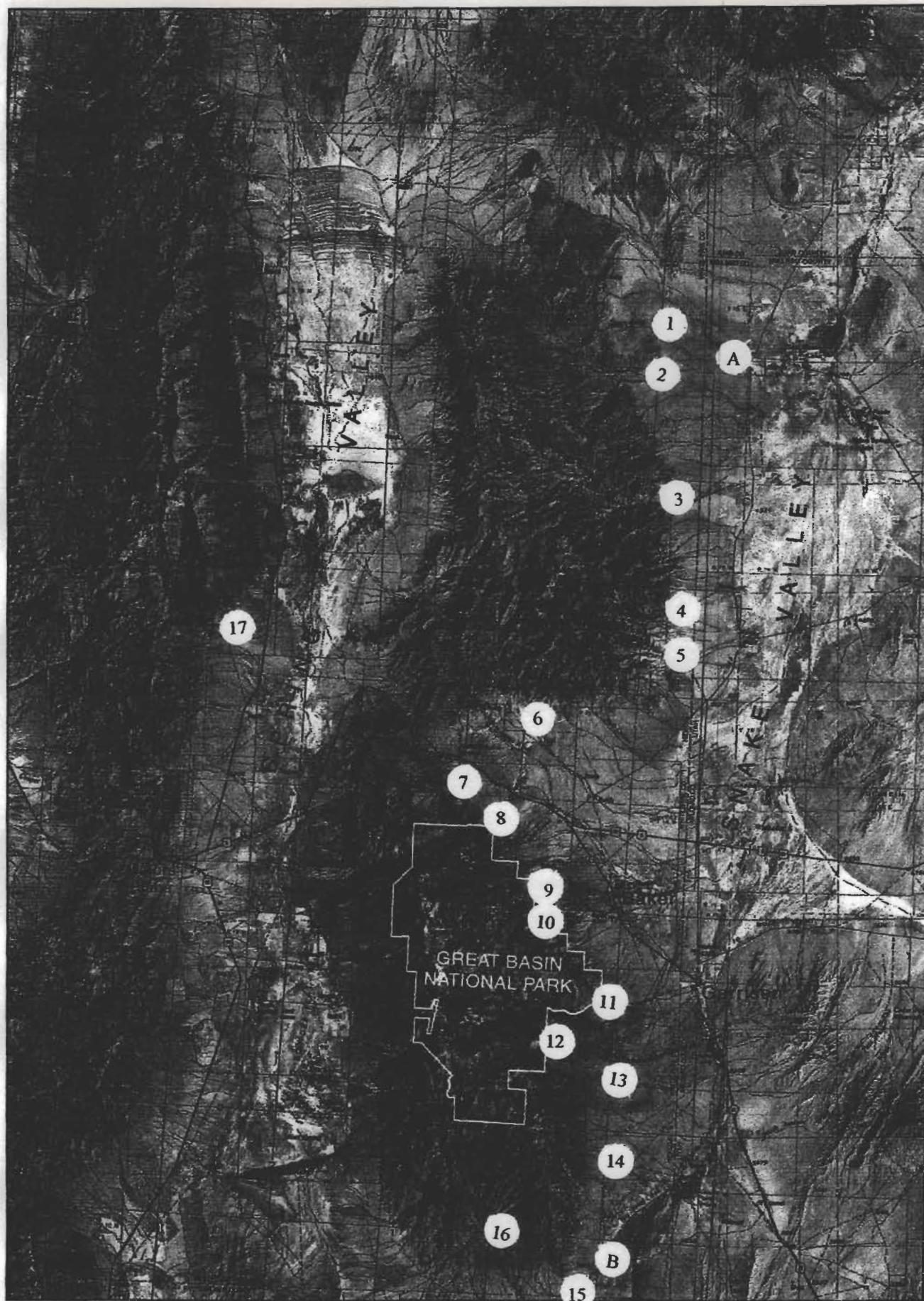
Western States Engineering was contracted by the Southern Nevada Water Authority of Las Vegas, Nevada, to research available data related to the surface waters of streams and springs of the east slope of the Snake Range of the Snake Valley hydrographic basin. Miscellaneous discharge measurements were made at the streams and springs of the Snake Range in late October, 2004. Discharge measurements were also obtained on Cleve Creek in Spring Valley. The data gathered were used to estimate average annual discharge for the perennial streams of the east slope of the Snake Range.

Location Description

The Snake Range is located in southeast White Pine County, Nevada. Spring Valley is located west of the range and Snake Valley is located to the east of the range. Water in Spring Valley originates on the east face of the mountains of the Schell Creek Range and the west face of the Snake Range. Water in Snake Valley originates on the east face of the mountains of the Snake Range. Snake Valley is located in both Nevada and Utah. The Snake Range is approximately 35 miles in length (north-south) and 10 miles in width (east-west). The mountain range is divided by Highway 50 between the towns of Ely, Nevada and Delta, Utah. A satellite image map of the Snake Range is shown in figure 1.

The Snake Range is a classic example of extensional faulting, what geologists call a metamorphic core complex. These mountain ranges are formed by extreme extension and thinning of the earth's crust along low angle normal faults (termed detachment faults) and the subsequent uplift of deep crustal rocks from depths of 6 to 9 miles. The direction of detachment faulting (in this case southeast) is commonly reflected in the overall form of the core complex. When viewed from above as in the satellite map (fig.1), the mountain mass is noticeably thickened into a roughly triangular shape that "points" in the general direction of extensional movement.

In the Great Basin, the basins and ranges of the region display evidence of a much more recent and very different kind of landscape change. In Pleistocene times (from about 10 thousand to 1.5 million years ago) the earth was subjected to a series of Ice Ages. In the Great Basin, these Ice Ages brought small alpine glaciers to most of the higher ranges and broad lakes to many of the sides of the highest ridges); and the floors of the adjacent basins are conspicuously marked by beaches and shorelines of several small pluvial lakes.



10 MILES

GREAT BASIN NATIONAL PARK

Map by Tom Patterson
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The water resource of east slope of the Snake Range includes the springs of Warm Spring and Big Spring. Warm Spring is located adjacent to Swan Creek Wash in the northeastern edge of the Snake Range. Warm Spring is located in Utah, approximately 0.5 mile east of the Nevada-Utah state line. Warm Spring is identified with an "A" on figure 1. Big Spring is located in the southeastern edge of the Snake Range. Big Spring is identified with the letter "B" on figure 1. The drainages near these springs are characterized with large深深 washes (Swan Creek Wash and Marble Wash in the north and Big Spring Wash and Unnamed Wash in the south). The drainages between the springs and washes all originate in the mountains of the Snake Range. The flows of these drainages result from mountain springs, snow melt and rainfall. These waters flow down the mountain slopes, made up of consolidated rocks, to the adjacent alluvial fans. The maximum flow of the streams is assumed to occur at the bedrock-valley fill contact. This point is at the heads of the fans at the mountain fronts.

The major drainages of the east slope of the Snake Range are listed below (from north to south).

	Drainage	Location	Area, in Square Miles
1	Swan Creek	T19N, R69-70E	
2	Marble Wash	T18N, R69-70E	22.1
3	Smith Creek	T17N, R69-70E	56.5
4	Hampton Creek	T16N, R70E	6.3
5	Hendrys Creek	T16N, R69-70E	17.2
6	Silver Creek	T16-15N, R69E	18.3
7	Weaver Creek	T14N, R68E	12.2
8	Strawberry Creek	T14N, R68-69E	8.1
9	Lehman Creek	T13N, R68-69E	11.4
10	Baker Creek	T13N, R68-69E	17.0
11	Snake Creek	T12N, R69-70E	25.0
12	Big Wash	T12N, R69-70E	27.2
13	Lexington Creek	T12-11N, R69-70E	13.0
14	Chokecherry Creek	T11N, R69-70E	3.2
15	Unnamed Wash	T10N, R69E	
16	Big Spring Wash	T11-10N, R69E	32.5

U.S. Geological Survey Data

The U.S. Geological Survey has operated flow recording stations on Baker and Lehman Creeks in the past. Calendar year and monthly stream flow statistics for Lehman Creek and Baker Creek are available for 11 years. This U.S. Geological Survey data is presented below:

Creek - Lehman Creek, Latitude 39°00'42", Longitude 114°12'49"

Drainage area = 11.0 square miles

Elevation = 6730 feet above sea level

Annual Mean Stream Flow = 5.2 cubic feet per second

Year	Annual Mean Stream flow in cubic ft/sec	Year	Annual Mean Stream flow in cubic ft/sec
1948	4.3	1954	4.7
1949	6.0	1993	5.8
1950	3.7	1994	4.1
1951	3.8	1995	11.2
1952	9.3	1996	3.9
1953	2.2		

Monthly Mean Stream flow, in CFS

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1947										2.2	2.1	1.9
1948	1.7	1.5	1.5	2.8	7.8	13.0	8.3	5.4	3.4	2.6	2.0	1.6
1949	1.4	1.5	2.7	4.5	10.3	21.9	13.7	5.9	3.3	2.8	2.0	1.8
1950	1.6	1.3	1.3	1.8	5.4	11.9	7.6	3.8	2.7	2.5	2.1	1.8
1951	1.4	1.1	1.2	1.4	5.3	12.2	7.9	6.3	3.5	2.2	1.6	1.3
1952	1.2	1.2	1.7	5.2	20.9	32.5	21.5	12.9	6.1	3.5	2.3	1.8
1953	1.7	1.3	1.0	1.3	1.8	4.2	4.9	3.9	2.1	1.6	1.4	1.3
1954	0.8	0.9	1.2	3.1	14.1	12.3	10.1	4.5	3.0	2.3	1.9	1.5
1955	1.2	1.3	1.4	1.5	5.2	20.2	13.3	10.8	5.1		1.8	1.6
1992										3.4	2.4	1.8
1993	1.0	0.7	1.2	1.7	15.8	19.1	12.2	6.1	4.5	3.6	2.1	1.6
1994	1.2	1.2	1.2	2.1	8.2	12.7	6.7	5.2	3.8	3.7	2.6	2.4
1995	1.3	1.5	1.8	2.9	8.0	39.2	43.5	18.0	8.4	2.6	1.1	
1996	1.9	1.7	1.7	2.6	6.4	10.9	7.4	4.4	3.5	2.6	2.2	1.6
1997	1.8	1.5	1.6	2.2	11.8	16.2	9.4	5.4	4.3			
2002								3.6	3.2	2.1	1.7	1.1
2003	1.0	1.0	1.1	1.3	5.2	17.5	7.2	4.8	4.4			
Mean	1.4	1.3	1.5	2.5	9.0	17.4	12.4	6.7	4.1	2.6	2.0	1.6

Lehman Creek near Baker, Nevada

Location Latitude 39° 00' 42", Longitude 114° 12' 48"
Drainage 11.0 square miles
Gage Datum 6,730 feet above sea level
Period of Record Water Years 1948-1955, 1992-1997, 2003

Discharge, Cubic Feet Per Second
Daily Mean Values for record

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.5	1.3	1.3	1.8	3.6	16	16	8.5	4.9	3.1	2.3	1.6
2	1.5	1.3	1.3	1.8	3.7	16	16	8.3	4.9	3.1	2.2	1.8
3	1.5	1.3	1.3	1.8	3.9	15	16	8.2	4.8	3.0	2.2	1.8
4	1.4	1.3	1.3	1.9	4.0	16	16	8.2	4.8	3.1	2.1	1.8
5	1.4	1.3	1.3	2.0	4.3	17	15	8.2	4.6	3.0	2.2	1.8
6	1.4	1.3	1.3	2.0	4.6	17	15	8.0	4.7	2.9	2.1	1.8
7	1.4	1.3	1.3	2.0	4.9	17	15	7.8	4.5	2.9	2.1	1.7
8	1.4	1.3	1.3	2.0	5.2	17	14	7.7	4.5	2.8	2.1	1.7
9	1.4	1.3	1.3	2.1	5.5	17	14	7.7	4.4	2.8	2.1	1.7
10	1.4	1.3	1.4	2.1	5.6	17	14	7.7	4.4	2.7	2.1	1.7
11	1.4	1.3	1.5	2.1	6.1	18	14	7.3	4.4	2.7	2.1	1.7
12	1.4	1.3	1.4	2.2	6.6	18	14	7.2	4.3	2.7	2.1	1.7
13	1.4	1.3	1.4	2.2	7.4	18	13	7.2	4.2	2.7	2.0	1.7
14	1.4	1.3	1.4	2.2	8.2	19	13	6.9	4.1	2.7	2.0	1.7
15	1.4	1.3	1.5	2.3	8.8	19	12	6.7	4.0	2.6	2.0	1.7
16	1.3	1.3	1.5	2.3	9.4	19	12	6.6	4.0	2.6	2.0	1.7
17	1.4	1.2	1.5	2.4	10	17	11	6.4	4.0	2.6	2.0	1.5
18	1.4	1.2	1.5	2.5	10	17	11	6.4	3.9	2.6	2.0	1.6
19	1.4	1.2	1.6	2.6	10	17	11	6.3	3.8	2.5	2.1	1.5
20	1.4	1.3	1.6	2.6	10	17	11	6.1	3.8	2.5	2.0	1.6
21	1.3	1.3	1.6	2.7	11	18	11	6.1	3.8	2.4	2.0	1.6
22	1.3	1.2	1.6	2.6	11	17	11	6.1	3.7	2.4	2.1	1.6
23	1.3	1.3	1.6	2.9	12	16	10	6.0	3.6	2.4	1.9	1.6
24	1.3	1.3	1.6	2.9	12	18	10	5.8	3.7	2.4	1.9	1.6
25	1.3	1.3	1.6	3.0	13	19	10	5.7	3.6	2.4	1.9	1.6
26	1.3	1.3	1.6	3.1	14	19	9.8	5.7	3.5	2.4	1.9	1.5
27	1.3	1.3	1.6	3.3	14	18	9.4	5.5	3.5	2.4	1.8	1.5
28	1.3	1.3	1.6	3.5	15	18	9.3	5.3	3.4	2.3	1.9	1.6
29	1.3	1.5	1.7	3.4	15	17	9.0	5.2	3.5	2.3	1.9	1.5
30	1.3	1.7	3.5	15	16	8.8	5.1	3.4	2.3	1.9	1.5	
31	1.3	1.7			16		6.9	5.1		2.3		
Total	42	37	45	74	280	523	379	208	123	81	61	51
Mean	1.4	1.2	1.5	2.4	9.0	17.4	12.2	6.7	4.1	2.6	2.0	1.6
Max	1.5	1.5	1.7	3.5	16	19	16	8.5	4.9	3.1	2.3	1.8
Min	1.3	1.2	1.3	1.8	3.6	16	8.6	5.1	3.4	2.3	1.8	1.5

Source: <http://nwis.waterdata.usgs.gov/nv/nwis>

Creek - Baker Creek, Latitude 38° 59'27", Longitude 114° 12'21"

Drainage area = 16.4 square miles

Elevation = 6750 feet above sea level

Annual Mean Stream Flow = 9.6 cubic feet per second

Year	Annual Mean Stream flow in cubic ft/sec	Year	Annual Mean Stream flow in cubic ft/sec
1948	5.9	1954	8.3
1949	10.9	1993	11.2
1950	5.6	1994	5.6
1951	6.7	1995	26.1
1952	19.7	1996	4.7
1953	3.7		

Monthly Mean Stream flow, in CFS

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1947										2.4	2.3	2.1
1948	2.1	1.7	2.0	4.7	14.2	23.0	8.4	4.5	2.9	2.9	2.4	1.7
1949	1.5	1.5	2.0	6.5	24.8	62.8	15.8	5.0	2.4	2.9	3.0	2.4
1950	2.1	1.3	1.9	3.8	14.6	20.5	8.4	3.8	2.9	2.6	2.5	2.2
1951	1.6	1.1	1.2	2.3	17.0	29.0	9.9	6.1	3.7	3.4	2.9	2.0
1952	1.9	1.6	1.9	9.4	65.1	90.5	39.2	12.0	5.2	3.8	3.2	2.4
1953	2.2	1.8	1.8	2.4	3.6	12.2	6.4	4.3	2.4	2.8	3.2	1.7
1954	1.5	1.9	2.3	9.6	40.6	18.8	8.2	3.7	3.4	3.1	3.1	2.4
1955	2.1	2.4	2.7	3.1	11.1	35.8	13.1	7.8	4.9			
1992										1.5	1.1	0.8
1993	0.3	0.4	1.1	2.6	62.5	41.2	14.0	3.6	2.0	2.6	2.2	1.5
1994	0.5	0.7	1.1	3.2	19.3	21.0	4.4	2.7	2.3	5.0	3.8	2.6
1995	1.7	2.0	3.4	4.1	18.8	123	122	27.1	4.1	2.2	1.8	1.6
1996	0.2	0.1	0.7	1.6	18.2	21.4	4.4	2.1	1.8	2.1	2.4	0.9
1997	1.6	1.4	2.2	4.0	37.6	42.9	11.5	3.8	2.6			
Mean	1.5	1.4	1.8	4.4	26.7	41.7	20.4	6.6	3.1	2.9	2.6	1.9

Baker Creek at narrows near Baker, Nevada

Location Latitude 36°59'27", Longitude 114°12'21"
Drainage
Gage Datum
Period of Record 6,750 feet above sea level
 Water Years 1948-1955, 1993-1997

Day	Discharge, Cubic Feet Per Second Daily Mean Values for record											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.6	1.4	1.5	2.3	8.8	43	33	10	3.8	2.7	2.9	2.1
2	1.5	1.4	1.4	2.4	9.2	42	31	10	3.7	2.7	2.9	2.1
3	1.6	1.4	1.4	2.5	10	41	32	9.8	3.6	2.7	2.9	2.1
4	1.6	1.4	1.5	2.5	11	40	30	9.4	3.6	2.9	3.0	2.1
5	1.5	1.4	1.5	2.7	12	42	29	9.2	3.5	2.9	2.8	2.1
6	1.5	1.4	1.5	2.8	12	44	29	8.9	3.4	2.9	2.8	2.1
7	1.5	1.4	1.8	2.8	13	45	29	8.9	3.3	2.9	2.7	2.1
8	1.5	1.4	1.6	2.9	14	44	29	8.5	3.3	2.8	2.7	2.1
9	1.5	1.4	1.6	2.9	14	43	27	8.2	3.2	2.8	2.6	2.0
10	1.5	1.4	1.7	3.0	15	42	28	8.0	3.2	2.8	2.6	2.0
11	1.6	1.4	1.8	3.0	17	42	28	7.7	3.2	2.9	2.7	1.9
12	1.6	1.4	1.7	3.1	19	44	25	7.3	3.2	2.9	2.8	1.9
13	1.8	1.4	1.7	3.2	21	50	23	7.2	3.1	3.0	2.7	2.0
14	1.5	1.4	1.7	3.4	25	52	21	6.8	3.0	3.0	2.7	1.9
15	1.5	1.4	1.8	3.5	28	54	19	6.5	3.1	2.9	2.6	1.9
16	1.5	1.4	1.8	3.7	31	52	18	6.2	3.0	2.9	2.7	1.9
17	1.5	1.3	1.9	4.0	32	48	17	6.1	3.0	2.9	2.6	1.9
18	1.4	1.3	1.9	4.3	33	44	16	6.0	3.0	2.9	2.5	1.9
19	1.4	1.3	1.9	4.6	32	41	16	5.8	3.0	2.9	2.7	1.8
20	1.4	1.3	2.0	4.8	34	38	15	5.7	2.9	2.9	2.4	1.9
21	1.4	1.3	2.0	5.1	39	37	15	5.7	3.0	2.8	2.5	1.8
22	1.4	1.3	2.1	5.5	38	36	14	5.1	2.9	2.9	2.6	1.8
23	1.4	1.3	2.1	5.9	36	35	14	4.9	2.8	2.8	2.5	1.7
24	1.4	1.3	2.1	6.3	37	36	13	4.7	2.9	2.9	2.4	1.7
25	1.4	1.4	2.2	6.5	37	37	14	4.6	2.9	2.9	2.4	1.7
26	1.4	1.4	2.2	6.8	38	38	13	4.4	2.8	3.0	2.4	1.7
27	1.4	1.4	2.2	7.3	39	37	12	4.3	2.8	3.0	2.3	1.7
28	1.4	1.4	2.3	8.0	43	37	12	4.2	2.8	2.9	2.4	1.7
29	1.4	1.1	2.3	8.0	44	38	12	4.0	3.2	2.9	2.3	1.7
30	1.5	—	2.3	8.4	43	34	11	3.9	3.0	2.9	2.2	1.7
31	1.5	—	2.3	—	45	—	11	3.8	—	2.9	—	1.6
Total	46	40	57	132	829	1252	634	206	94	89	78	58
Mean	1.5	1.3	1.8	4.3	26.8	41.7	20.4	6.6	3.1	2.9	2.5	1.9
Max	1.6	1.4	2.3	8.3	45	54	33	10	3.8	2.9	2.9	2.1
Min	1.4	1.1	1.4	2.3	8.8	40	11	3.8	2.6	2.7	2.2	1.6

Source: <http://nwis.waterdata.usgs.gov/nv/nwis>

The U.S. Geological Survey also operates a flow recording station on nearby Cleve Creek in Spring Valley. Cleve Creek is located just east of the Snake Range (number 17 on figure 1). Calendar year streamflow statistics for Cleve Creek are available for 30 years. That data is presented below:

Creek - Cleve Creek, Latitude 39°12'58", Longitude 114°31'44"

Drainage area = 31.8 square miles

Elevation = 6200 feet above sea level

Annual Mean Stream Flow = 10.1 cubic feet per second

Year	Annual Mean Stream flow in cubic ft/sec	Year	Annual Mean Stream flow in cubic ft/sec	Year	Annual Mean Stream flow in cubic ft/sec
1915	10.2	1978	13.5	1994	6.3
1916	10.8	1979	10.7	1995	16.7
1960	5.1	1980	14.4	1996	8.6
1961	5.6	1983	30.8	1997	9.5
1962	9.2	1984	22.4	1998	15.9
1963	9.1	1985	11.9	1999	12.4
1964	8.6	1986	13.5	2000	8.5
1965	9.5	1991	7.41	2001	9.0
1966	6.8	1992	5.4	2002	6.4
1977	6.6	1993	9.6	2003	7.3

Cleve Creek near Ely, Nevada

Location
Drainage
Gage Datum
Period of Record

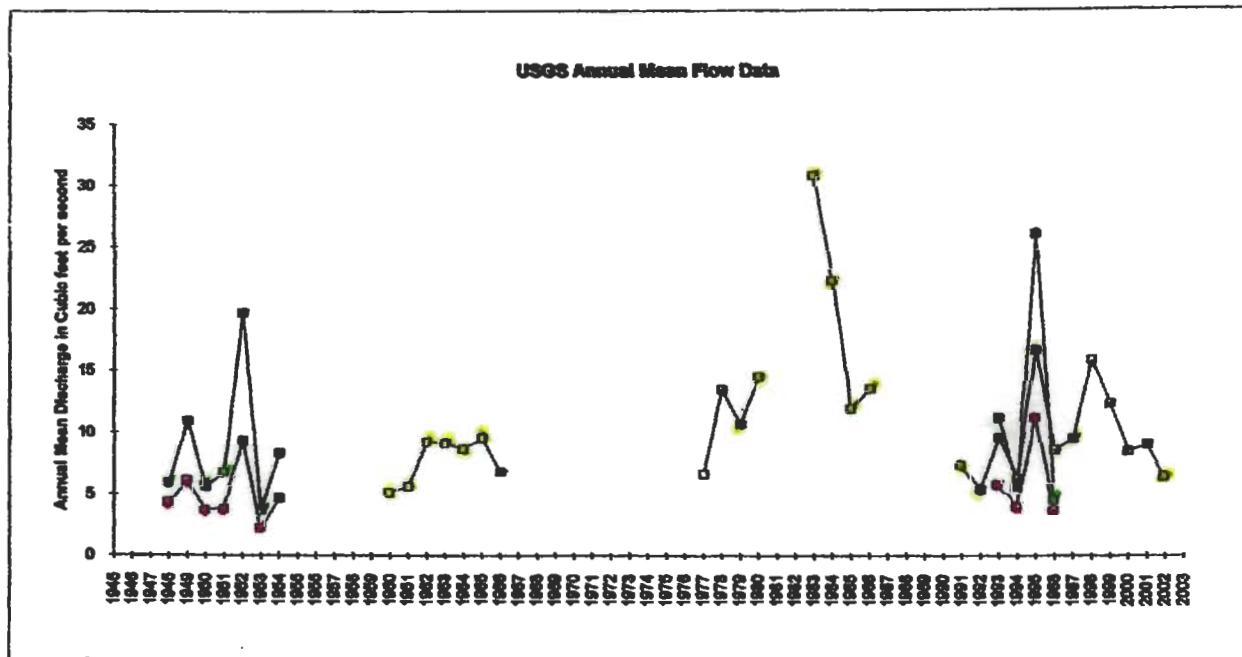
Latitude 39°12'58", Longitude 114°31'44"
31.8 square miles
6,200 feet above sea level
Water Years 1915-1916, 1959-1967, 1978-1981, 1983-1987, 1991-2003

Discharge, Cubic Feet Per Second
Daily Mean Values for record

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	6.6	6.9	7.0	9.7	16	30	15	8.6	7.5	7.2	7.5	7.4
2	6.6	7.1	7.0	9.8	16	30	14	8.5	7.4	7.3	7.4	7.3
3	6.6	7.0	7.2	9.9	17	30	14	8.5	7.4	7.3	7.4	7.3
4	6.6	7.0	7.3	9.9	17	29	13	8.3	7.3	7.2	7.3	7.3
5	6.6	7.0	7.4	9.9	17	29	13	8.4	7.3	7.3	7.3	7.2
6	6.7	6.9	7.4	10	18	29	13	8.4	7.6	7.3	7.3	7.3
7	6.7	6.8	7.6	10	18	29	12	8.5	7.7	7.4	7.3	7.2
8	6.6	6.7	7.7	10	17	28	12	8.3	7.5	7.3	7.3	7.1
9	6.6	6.7	7.9	11	18	27	12	8.3	7.5	7.3	7.3	7.0
10	6.5	6.8	7.9	11	19	26	11	8.2	7.4	7.3	7.3	6.9
11	6.5	6.8	8.3	11	19	28	11	8.0	7.4	7.3	7.4	6.8
12	6.4	6.8	8.4	11	20	26	11	8.0	7.5	7.3	7.4	6.7
13	6.4	6.8	8.4	11	21	27	11	8.1	7.4	7.3	7.4	6.7
14	6.5	6.7	8.4	12	23	26	10	8.0	7.4	7.3	7.4	6.7
15	6.4	6.7	8.5	12	22	25	10	8.0	7.3	7.2	7.3	6.7
16	6.4	6.7	8.6	13	23	24	10	8.0	7.3	7.2	7.2	6.6
17	6.5	6.7	8.5	13	22	24	10	8.0	7.3	7.2	7.2	6.6
18	6.5	6.8	8.6	13	22	23	10	8.0	7.4	7.2	7.3	6.6
19	6.4	6.9	8.6	13	22	22	10	8.0	7.4	7.3	7.2	6.6
20	6.4	7.0	8.7	14	23	21	10	8.0	7.3	7.3	7.3	6.6
21	6.4	7.0	8.9	14	25	20	10	7.9	7.4	7.2	7.2	6.5
22	6.5	7.0	9.1	14	26	19	10	7.8	7.3	7.2	7.2	6.5
23	6.5	7.0	9.3	14	27	18	10	7.8	7.3	7.3	7.2	6.5
24	6.4	7.0	9.3	15	28	18	9.4	7.7	7.3	7.3	7.2	6.6
25	6.6	6.9	9.3	14	28	18	9.2	7.6	7.2	7.4	7.2	6.7
26	6.6	6.9	9.3	15	28	17	9.1	7.6	7.1	7.5	7.2	6.6
27	6.6	6.9	9.4	14	27	17	9.0	7.5	7.1	7.5	7.1	6.8
28	6.5	6.9	9.5	15	28	16	8.9	7.4	7.1	7.5	7.0	6.7
29	6.6	6.8	9.5	15	29	16	8.8	7.5	7.2	7.5	7.1	6.7
30	6.6	9.4	16		30	15	8.8	7.6	7.2	7.6	7.2	6.6
31	6.7	9.6			30	15	8.8	7.6		7.6		6.6
Total	203	199	262	368	694	704	331	248	220	227	218	211
Mean	6.5	6.4	8.4	11.9	22.4	23.5	10.7	8.0	7.3	7.3	7.0	6.8
Max	6.7	7.1	9.69	16	30	30	15	8.6	7.7	7.6	7.5	7.4
Min	6.4	6.8	7	9.7	16	15	8.8	7.4	7.1	7.2	7	6.5

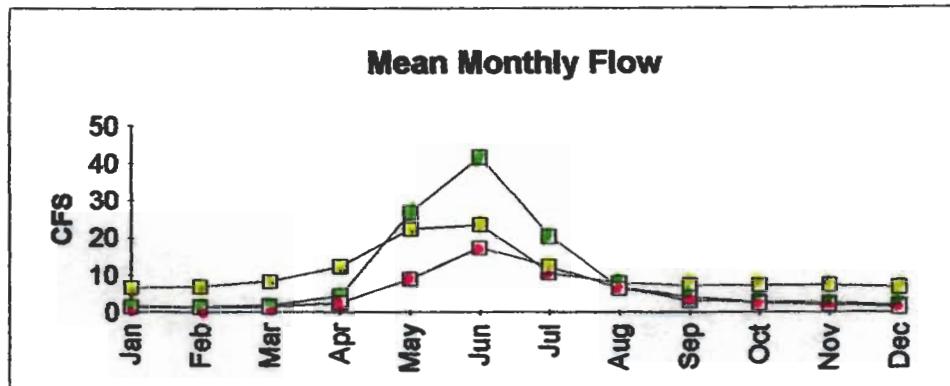
Source: <http://nwis.waterdata.usgs.gov/nv/nwis>

Annual mean flows for Lehman Creek, Baker Creek and Cleve Creek are presented on the graph below. The graph indicates that the trends of mean annual flow are similar between the three creek basins. The graph also indicates that Baker Creek experiences a larger difference between low flow years and high flow years.



Cleve Creek (Yellow) Lehman Creek (Red) Baker Creek (Green)

Mean monthly flows for Lehman Creek, Baker Creek and Cleve Creek are presented on the graph on the following page. The graph indicates that a base flow condition exists in most years in the months of January through March and September through December.



Cleve Baker Lehman



	Cleve	Baker	Lehman
Jan	6.5	1.5	1.4
Feb	6.9	1.4	1.3
Mar	8.4	1.8	1.5
Apr	12.3	4.4	2.5
May	22.3	26.7	9
Jun	23.5	41.7	17.4
Jul	10.7	20.4	12.4
Aug	8	6.65	6.7
Sep	7.3	3.1	4.1
Oct	7.3	2.9	2.6
Nov	7.3	2.6	2
Dec	6.8	1.9	1.6
Total	127.3	115.1	62.5
Mean	10.6	9.6	5.2

U.S.G.S. Reconnaissance Report

The U.S.G.S. published Report 34 of the Water Resource Reconnaissance Series in 1965. This report was an appraisal of the Snake Valley area, Utah and Nevada. The report states that there are 14 perennial stream flowing to Snake Valley from the western mountain ranges. Two of these streams are the springs of Warm Spring and Big Spring. The streams flowing from the Snake Range are Big Wash, Snake Creek, Baker Creek, Lehman Creek, Silver Creek, and Hendrys Creek. The streams flowing from the Deep Creek Range are Birch Creek, Trout Creek, Granite Creek, Cedar Creek, Thomas Creek, and Basin Creek.

U.S.G.S. data available at the time of the report stated the average mean flow for Baker Creek was 8.5 cubic feet per second, Lehman Creek was 7.5 cubic feet per second, and Trout Creek was 4.3 cubic feet per second. The report states that the periods of high flow for these creeks occur in the months of May, June and July.

Report 34 did not use recorded flow data to estimate average annual runoff in the Snake Valley area. Average annual flows were made using estimates from methods described by Moore, Eakin and others (1965) developed in the upper Reese River Valley, Nevada. The report concluded that 36,000 acre-feet of annual runoff flow from the east slopes (and Big Spring) of the Snake Range to Snake Valley. The report also concludes that 14,000 acre-feet of annual runoff flow to northern Snake Valley from the east slopes of the Deep Creek Range.

Hood, J.W., and Rush, F.E., 1965, Water Resources Appraisal of Snake Valley Area, Utah and Nevada, Nevada Department of Conservation and Natural Resources, Water Resources, Reconnaissance Series Report 34, 43p.

Moore, D.O., 1965, A Method of Estimating Mean Runoff From Ungaged Basins in Mountainous Regions: American Geophysical Union Transactions, v46, no. 3..

Miscellaneous Measurements

Miscellaneous flow discharge measurements were obtained on the perennial streams of the east slope of the Snake Range in late October, 2004. Flow discharge measurements were obtained at Cleve Creek during the same time period. The discharge measurements were made at the mountain front on each basin.

The U.S. Geological Survey uses the AA and Pygmy current meters for obtaining the velocity for discharge measurements. Western States Engineering prefers using a Swoffer stream current velocity meter. The Swoffer meter uses a 2-inch propeller which rotates a fiber-optic bundle to create a signal from a photo diode to a photosensitive transistor. This signal is transferred to an indicator where velocity is displayed to hundredths. The velocities are reliable in the range of 0.1 to 25 feet per second with an accuracy of 1%.

When measurements were obtained on the streams of the Snake Range, measurements were also made at Cleve Creek with three meters (AA, Pygmy, and Swoffer). The numerous measurements of Cleve Creek were to verify the similarity of the U.S.G.S. meters and the Swoffer meter and for obtaining a relationship to a stream with significant past water flow data.

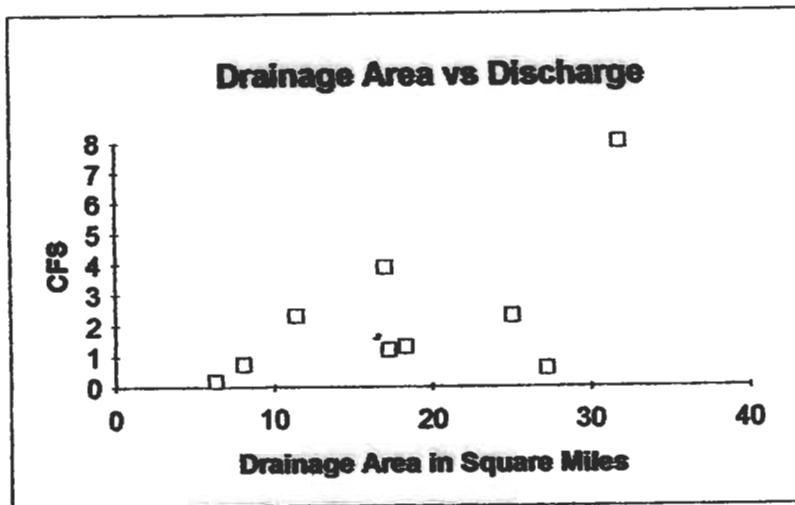
A summary of the miscellaneous flow discharge measurements and observations of no-flow is presented in Table 1.

Table 1. Miscellaneous Measurements

Meas. #	Date/Time	Creek	Drainage Area	Meter	Flow (cfs)
1	10/28 8:00	Cleve Cr.	31.8	Pygmy	8.8
2	10/28 8:45	Cleve Cr.	31.8	Swoffer	8.1
3	10/28 9:30	Cleve Cr.	31.8	AA	8.4
4	10/28 12:00	Big Spring Wash	32.5	Swoffer	0.0
5	10/28 12:30	Unnamed Wash			0.0
6	10/28 12:45	Big Spring		Swoffer	10.7
7	10/28 14:00	Chokecherry Cr.	3.2		0.0
8	10/28 14:45	Lexington Cr.	13.0		0.0
9	10/28 16:00	Big Wash	27.2	Swoffer	0.6
10	10/28 17:00	Snake Cr.	25.0	Swoffer	2.3
11	10/29 8:00	Cleve Cr.	31.8	Pygmy	8.0
12	10/29 8:45	Cleve Cr.	31.8	Swoffer	8.2
13	10/29 9:30	Cleve Cr.	31.8	AA	7.9
14	10/29 10:15	Weaver Cr.	12.2		0.0
15	10/29 11:00	Strawberry Cr.	8.1	Swoffer	0.8
16	10/29 13:00	Baker Cr.	17.0	Swoffer	3.9
17	10/29 14:00	Lehman Cr.	11.4	Swoffer	2.3
18	10/29 16:00	Silver Cr.	18.3	Swoffer	1.3

Meas. #	Date/Time	Creek	Drainage Area	Meter	Flow (cfs)
19	10/30 8:30	Cleve Cr.	31.8	Swoffer	8.0
20	10/30 10:30	Hendrys Cr.	17.2	Swoffer	1.2
21	10/30 11:30	Hampton Cr.	6.3	Swoffer	0.2
22	10/30 12:30	Smith Cr.	56.5		0.0
23	10/30 14:00	Marble Wash	22.1		0.0
24	10/30 15:00	Swan Cr.			0.0
25	10/30 17:00	Warm Springs		Swoffer	15.0

The measured flows made in Table 1 are plotted in the graph below. The plot indicates there was not a relationship between drainage area and discharge.



Creek	Drainage Area	10/04 Flow in cfs
Cleve Cr	31.8	8
Big Wash	27.2	0.6
Snake Cr	25	2.3
Strawberry	8.1	0.75
Baker Cr	17	3.9
Lehman Cr	11.4	2.3
Silver Cr	18.3	1.3
Hendrys Cr	17.2	1.2
Hampton Cr	6.3	0.2

Estimated Average Annual Discharge

An estimate of average annual discharge for the streams measured during this project was considered using various methods. The first method was to relate average annual discharge to basin drainage area. It was assumed that the larger the contributing drainage basin, the larger the average annual discharge. The U.S.G.S. recorded data indicated that this method was not applicable for the basins of the Snake Range and Schell Range. The graph of annual mean flow data of Lehman, Baker and Cleve Creeks showed that Baker Creek had a higher mean flow than Cleve Creek in the year 1995, and yet has a drainage basin of half that of Cleve Creek. The October discharge measurements obtained for this project confirmed that drainage area size did not directly relate to discharge. The larger of the drainages visited (Smith Creek - 56.5 sq.mi. and Big Spring Wash - 32.5 sq.mi.) had no flow whereas some smaller drainages had flow (Hampton Creek - 63 sq.mi. and Strawberry Creek - 8.1 sq.mi.).

Site location indicated that basins located at the extremes of the Snake Range probably flow at a high rate for a short time period (flash floods from intense rain events or rapid snow melt). These basins had channel characteristics of washes. The basins located more centrally in the Snake Range had perennial streams. These stream channels were more confined and had significant vegetation on the banks. This project did not have the time to study the channel characteristics versus average annual discharge relationship.

The recorded flow data on Lehman, Baker and Cleve Creeks indicates that a base flow condition occurs on each during many months of the year. Specifically the months of January through March and September through December recorded flows of relatively constant discharge for each creek. The average of the base flow daily discharge for the above creeks was compared to the average annual discharge for similarities. Base mean flow was 60% of annual mean flow for Cleve Creek, 23% for Baker Creek and 40% for Lehman Creek. The average base flow to annual mean flow is 41%.

The October 29, 2004, discharge measurements of Lehman, Baker and Cleve Creeks were compared to the recorded mean October 29th flow for each Creek. Lehman Creek flow was measured at 2.3 cfs on 10/29/04. The average recorded flow for Lehman Creek on October 29 is 2.3 cfs. Baker Creek flow was measured at 3.9 cfs on 10/29/04. The average recorded flow for Baker Creek on October 29 is 2.9 cfs. Cleve Creek flow was measured at 8.1 cfs on 10/29/04. The average recorded flow for Cleve Creek on October 29 is 7.6 cfs.

The October, 2004, discharge measurements for Lehman, Baker and Cleve Creeks were compared to average annual discharge of each creek for similarities. The discharge measurement made on Lehman Creek was 44% of the average annual discharge for Lehman Creek. The discharge measurement made on Baker

Creek was 41% of the average annual discharge for Baker Creek. The discharge measurement made on Cleve Creek was 81% of the average annual discharge for Cleve Creek. The average of the October discharge measurements to average annual mean flow for these three creeks is 55% (or times the measurement by 1.82).

The U.S.G.S. has recorded significantly more data on Cleve Creek than on Lehman and Baker Creeks. The graph of annual mean flow data of Lehman, Baker and Cleve Creeks for the years 1993-1996 (period where all three Creeks were recorded simultaneously) showed that the creeks had very similar characteristics. Therefore an estimate of average annual mean flow on creeks of the Snake Range can be calculated by using only the October discharge measurement of Cleve Creek its relation to the recorded annual mean flow of Cleve Creek.

For estimating average annual discharge on the basins of the east slope of the Snake Range for this study two methods of calculation were utilized. The first method involved the measurements of Lehman, Baker and Cleve Creeks and the recorded average annual flows for those creeks. The average annual discharge for the creeks of the Snake Range was estimated to be the measured October flow divided by 0.55. The estimated annual flow for Warm Spring and Big Spring was assumed to be the measured October flow of the springs. Table 2 lists estimated annual discharges of the Snake Range using this method of calculation.

The second method for estimating average annual discharge was based upon the October measurements and the relation between the October measurement of Cleve Creek and the mean discharge for Cleve Creek. The average annual discharge for the creeks of the Snake Range using this method was estimated by dividing the October measurement by 0.81. Table 3 lists estimated annual discharges of the Snake Range using this method of calculation.

Table 2. Estimated Annual Discharge, Major Springs and Creeks of the east slope of the Snake Range (using U.S.G.S. data on Lehman, Baker, and Cleve Creeks):

Basin	October Flow	Annual Average Discharge	Acre-ft Year
Warm Spring	15.0 cfs	15.0 cfs	11,000 af
Hampton Creek	0.2 cfs	0.4 cfs	300 af
Hendrys Creek	1.2 cfs	2.2 cfs	2,000 af
Silver Creek	1.3 cfs	2.4 cfs	2,000 af
Strawberry Creek	0.8 cfs	1.5 cfs	1,000 af
Lehman Creek	2.3 cfs	4.2 cfs	3,000 af
Baker Creek	3.9 cfs	7.1 cfs	5,000 af
Snake Creek	2.3 cfs	4.2 cfs	3,000 af
Big Wash	0.6 cfs	1.1 cfs	1,000 af
Big Spring	10.7 cfs	10.7 cfs	8,000 af
Estimated Total Snake Range annual Runoff			36,000 acre-feet

Table 3. Estimated Annual Discharge, Major Springs and Creeks of the east slope of the Snake Range (using U.S.G.S. data on Cleve Creek):

Basin	October Flow	Annual Average Discharge	Acre-ft Year
Warm Spring	15.0 cfs	15.0 cfs	11,000 af
Hampton Creek	0.2 cfs	0.2 cfs	100 af
Hendrys Creek	1.2 cfs	1.5 cfs	1,000 af
Silver Creek	1.3 cfs	1.6 cfs	1,000 af
Strawberry Creek	0.8 cfs	1.0 cfs	1,000 af
Lehman Creek	2.3 cfs	2.8 cfs	2,000 af
Baker Creek	3.9 cfs	4.8 cfs	4,000 af
Snake Creek	2.3 cfs	2.8 cfs	2,000 af
Big Wash	0.6 cfs	0.7 cfs	500 af
Big Spring	10.7 cfs	10.7 cfs	8,000 af
Estimated Total Snake Range annual Runoff			31,000 acre-feet

East Slope Deep Creek Range, Snake Valley, Utah

Deep Creek Mountain Range is northeast of the Snake Mountain Range and west of Snake Valley. Major streams of the east slope of the Deep Creek Range are Basin Creek, Toms Creek, Granite Creek, Trout Creek and Birch Creek. The U.S.G.S. records flows on Trout Creek and Granite Creek. Data for Trout Creek was found for the water years 1959 to 1995 and 2002 to 2003. Daily discharge for Trout Creek for October 2002 through September 2003 and site statistics are presented on the following page. Only real-time data was found for Granite Creek (no daily mean flows). Available data for these creeks was found on the internet at the following address:

<http://waterdata.usgs.gov/ut/nwis>

Miscellaneous discharge measurements were obtained on October 31, 2004, on Birch Creek, Trout Creek, Granite Creek and Indian Farm Creek. Indian Farm Creek could not be found on available maps. The measurement of this creek was made upstream of the Snake Valley Road, near the Callao Campground. A sign at the creek indicated Indian Farm Canyon was located just west of the measurement site.

The miscellaneous flow discharge measurements and observations of no-flow are presented in Table 2.

Table 2. Miscellaneous Measurements

Meas. #	Date/Time	Creek	Meter	Flow (cfs)
26	10/31 8:30	Birch Cr.	Swoffer	1.6
27	10/31 9:00	Trout Cr.	Swoffer	1.0
28	10/31 10:15	Granite Cr.		0.0
28	10/31 10:35	Granite Cr.	Swoffer	0.7
29	10/31 12:00	Indian Farm Cr.	Swoffer	1.5

Appendix

Appendix

Measurements	Date		Creek	Flow (cfs)
1	10/28	8:00	Cleve Cr.	8.8
2	10/28	8:45	Cleve Cr.	8.1
3	10/28	9:30	Cleve Cr.	8.4
4	10/28	12:00	Big Spring Wash	0.0
5	10/28	12:30	Unnamed Wash	0.0
6	10/28	12:45	Big Spring	10.7
7	10/28	14:00	Chokecherry Cr	0.0
8	10/28	14:45	Lexington Cr.	0.0
9	10/28	16:00	Big Wash	0.6
10	10/28	17:00	Snake Cr.	2.3
11	10/29	8:00	Cleve Cr.	8.0
12	10/29	8:45	Cleve Cr.	8.2
13	10/29	9:30	Cleve Cr.	7.9
14	10/29	10:15	Weaver Cr.	0.0
15	10/29	11:00	Strawberry Cr.	0.8
16	10/29	13:00	Baker Cr.	3.9
17	10/29	14:00	Lehman Cr.	2.3
18	10/29	16:00	Silver Cr.	1.3
19	10/30	8:30	Cleve Cr.	8.0
20	10/30	10:30	Hendrys Cr.	1.2
21	10/30	11:30	Hampton Cr.	0.2
22	10/30	12:30	Smith Cr.	0.0
23	10/30	14:00	Marble Wash	0.0
24	10/30	15:00	Swan Cr.	0.0
25	10/30	17:00	Warm Springs	15.0
26	10/31	8:30	Birch Creek	1.6
27	10/31	9:00	Trout Creek	1.0
28	10/31	10:15	Granite Creek	0.0
28	10/31	10:35	Granite Creek	0.7
29	10/31	12:00	Indian Farm Creek	1.5

DISCHARGE MEASUREMENT NOTES											
Station			Sections	Station	Width	Depth	Revolutions	Time	Velocity	Area	Discharge
Cleore Creek, Spring Valley, NV			1	2.0	.5	.30	—	0	.15	0	
B.6 Squares			2	9.0	1.0	.45	3	.60	.081	.45	.04
Hydrologist			3	9.0	.15	.60	10	.45	.24	.45	.11
Date	10/28/04		4	4.5	.5	.60	15	.54	.29	.30	.09
Time	0800		5	5.0	.5	.55	25	.46	.63	.36	.17
			6	5.5	.5	.50	50	.46	.108	.45	.27
Width	13	Area	8.4	Velocity	1.0	Discharge	8.8	8	6.5	.60	.45
Meter	.5' 6	Method	2.5		9	7.0	.5	.70	.50	.42	.117
Description of flow				10	7.5	.5	.62	40	.50	.86	.31
Remarks				11	8.0	.5	.72	60	.39	.550	.36
Metric				12	8.5	.5	.60	60	.43	1.37	.90
				13	9.0	.5	.70	60	.40	1.47	.35
Measurement rated excellent (25%), good (5%), fair (8%), poor (over 8%)				14	9.5	.5	.70	100	.44	2.21	.35
Description of cross-section				15	10.0	.5	.60	50	.42	1.82	.90
Flow velocity steady				16	10.5	.5	.60	100	.40	2.03	.90
				17	11.0	.5	.80	60	.41	1.44	.40
				18	11.5	.5	.80	60	.45	1.74	.40
				19	12.0	.5	.78	80	.50	1.57	.39
ice on channel/banks				20	12.5	.5	.50	50	.43	1.15	.40
				21	13.0	.5	.74	40	.48	.82	.37
Measurements of 3				22	13.5	.5	.72	25	.51	.50	.36
Three discharge measurements made in Cleave Creek at varying current metering				23	14.0	.5	.76	10	.45	.44	.36
				24	14.5	.5	.60	3	.42	.10	.30
				25	15.0	.45	.50	—	—	.13	0
				26							
				27							
				28							
				29	13.0	13.0					
				30							

(Indicated by circle)

Flow velocity steady

Rock, gravel

ice on channel

ice on channel/banks

DISCHARGE MEASUREMENT NOTES

Station	Close Creek, Spring Creek, N.W. side	Section	Station	Width	Depth	Velocity	Area	Discharge
Hydrologist	Bud Squires	1	2.0	.50	.30	0	.15	0
Date	11/28/64	2	3.0	1.00	.75	.5	.45	.22
Time	5:45	3	4.0	.75	.60	.10	.95	.05
Width	1.3.0	4	4.5	.5	.60	.51	.30	.15
Method	S.f. 6	5	5.0	.5	.65	.63	.36	.17
Meter	5.10 1/20	6	5.5	.5	.50	.10	.25	.18
Description of flow		7	6.0	.5	.50	.08	.25	.22
Description of cross-section	sands and gravel	8	6.5	.5	.60	.15	.30	.35
Remarks	all ice on edges	9	7.0	.5	.70	.10	.35	.39
Measurement 2 of 3	for current meter verification	10	7.5	.5	.62	.75	.31	.23
27		11	8.0	.5	.72	.36	.36	.49
28		12	8.5	.5	.80	.41	.40	.56
29		13	9.0	.5	.70	.40	.35	.49
30		14	9.5	.5	.70	.30	.35	.49
	Measurement rated excellent (26), good (59) fair (8%), poor (over 8%)	15	10.0	.5	.80	.62	.40	.65
		16	10.5	.5	.80	.57	.40	.63
		17	11.0	.5	.80	.44	.40	.58
		18	11.5	.5	.80	.72	.40	.69
		19	12.0	.5	.76	.54	.39	.60
		20	12.5	.5	.80	.66	.40	.62
		21	13.0	.5	.74	.70	.37	.66
		22	13.5	.5	.72	.38	.36	.47
		23	14.0	.5	.70	.08	.35	.63
		24	14.5	.5	.60	.04	.30	.10
		25	15.0	.5	.50	0	.13	0
		26						
		27						
		28						
		29						
		30						

8.44

8.13

DISCHARGE MEASUREMENT NOTES

Station	Sections	Station	Width	Depth	Revolutions	Time (sec)	Velocity	Area	Discharge
Bob Squares									
Cleve Creek Spacing Valley									
White Pine County, NV									
10/28/64	1	2.0	.50	.30	—	—	0	0.15	0
9/30	2	3.0	1.00	.45	3	6.7	.12	.45	.05
19.0	3	7.0	.75	.60	5	5.0	.24	.45	.11
Area E. 7	4	4.5	.50	.60	7	4.5	.36	.30	.11
Method .5 and .4	5	5.0	.5	.55	15	5.0	.67	.38	.18
Sections 2.5	6	5.5	.5	.50	20	4.0	1.11	.25	.28
Meter AA	7	6.0	.5	.50	20	4.9	.91	.25	.23
Measurement rated excellent (2%), good (5%) fair (8%), poor (over 8%)	8	6.5	.5	.60	20	4.4	1.01	.30	.30
Description of flow Fluv. Study	9	7.0	.5	.70	30	4.5	1.47	.35	.51
Description of cross-section rocks and gravel	10	7.5	.5	.62	15	4.7	1.72	.31	.22
Remarks Measurement 3/3 for current meters closed	11	8.0	.5	.72	30	4.3	1.54	.36	.56
	12	8.5	.5	.80	25	4.4	1.24	.40	.50
	13	9.0	.5	.70	20	4.3	1.03	.35	.36
	14	9.5	.5	.70	40	5.0	1.76	.35	.62
	15	10.0	.5	.80	30	4.3	1.54	.40	.62
	16	10.5	.5	.80	30	4.0	1.63	.40	.65
	17	11.0	.5	.80	30	4.0	1.63	.40	.65
	18	11.5	.5	.80	30	4.1	1.62	.40	.65
	19	12.0	.5	.78	30	4.4	1.51	.39	.59
	20	12.5	.5	.80	30	4.9	1.35	.40	.51
	21	13.0	.5	.74	20	4.9	1.13	.37	.42
	22	13.5	.5	.72	15	5.6	.60	.34	.22
	23	14.0	.5	.70	3	5.7	.13	.35	.04
	24	14.5	.5	.60	1	7.0	.06	.30	.02
	25	15.0	.25	.50	—	—	0	.13	0
	26								
	27								
	28								
	29	13.0	13.0						
	30								

1/3 Fluv. study
1/3 Sodden
3/3 A.A.

8.9 cfs
8.1 cfs
8.4 cfs

0.4 cfs = 5.2%

844 \$43



Cleve Creek, Spring Valley, Nevada
10/28/04 Discharge = 8.8 cfs

DISCHARGE MEASUREMENT NOTES				Sections		Station	Width	Depth	Velocity	Area	Discharge
Station	Big Spring Wash, Nevada										
Hydrologist	Bob Squires		1								
Date	10/28/04		2								
Time	12:00		3								
Width	—	Area	—	Velocity	—	Discharge	0 cfs	8			
Method	—						9				
Water	—						10				
Measurement taken upstream from road 650, R.R. 650 (RM 5.6)							11				
Description of flow	No flow / no water						12				
Description of cross section	Ward is 150 - 200' wide						13				
Actual flow channel is	actual flow channel is						14				
Remarks	5'						15				
							16				
							17				
							18				
							19				
							20				
							21				
							22				
							23				
							24				
							25				
							26				
							27				
							28				
							29				
							30				

channel was dry

site of measurement 15 ft
Forest Service Boundary

New corner section at T 12 N
R 69 E



Big Spring Wash, Snake Valley, Nevada
10/28/04 Discharge = 0.0 cfs

DISCHARGE MEASUREMENT NOTES				Sections	Station	Width	Depth	Velocity	Area	Discharge
Station										
Hydrologist										
Date										
Time										
Width	Area	Velocity	Discharge	0 c/s	6	6	6			
Method		Sections			7	7	7			
Meter					8	8	8			
					9	9	9			
					10	10	10			
					11	11	11			
					12	12	12			
					13	13	13			
					14	14	14			
					15	15	15			
					16	16	16			
					17	17	17			
					18	18	18			
					19	19	19			
					20	20	20			
Remarks					21	21	21			
					22	22	22			
					23	23	23			
					24	24	24			
					25	25	25			
					26	26	26			
					27	27	27			
					28	28	28			
					29	29	29			
					30	30	30			

Unashed Head - between
Big Spring Creek and Big Springs
Bob Squires

10/28/04

12.30
0 c/s

Measurement of total discharge (20), good (9%), full (95), poor (8%)

Channel dry.
located on White Pine County
and Lincoln County line.

Six-two 31, T 10N, R 70E

DISCHARGE MEASUREMENT NOTES

	Section	Station	Width	Depth	Velocity	Area	Discharge
Station							
Hydrologist							
Date							
Time							
Width	7.0	Area	5.4	Velocity	1.42	Discharge	6.6 cfs
Method	- S and L	Sections	15				
Meter	Sus 1110						
Measurement rated excellent (2%), good (27%), fair (51%), poor (over 8%)							
Description of flow	Elev 1122 steady - water flows across						
Description of cross-section	Sand and gravel						
Remarks	Measured flow is only a portion of the basin of Big Spruce						
	Liaison:	Section 22, T10N, R70E					
			24				
			25				
			26				
			27				
			28				
			29				
			30				



Big Springs, Snake Valley, Nevada
10/28/04 Discharge = 6.6 cfs

DISCHARGE MEASUREMENT NOTES

		Sections	Station	Width	Depth	Velocity	Area	Discharge
Station								
Hydrologist	Bud Spurrus	1	2.5	.5	0	0	0	0
Date	16/26/64	2	3.5	.75	.25	.05	.19	.01
Time	12:45	3	9.0	.5	.45	.15	.23	.03
Width	10.5	4	4.5	.5	.55	.54	.28	.15
Meter	Snodder	5	5.0	.5	.62	.64	.31	.20
Method	S. & E.	6	5.5	.5	.64	.56	.32	.18
Remarks	This is just a portion of the flow of Big Spruce	7	6.0	.5	.70	.92	.35	.32
		8	6.5	.5	.70	1.12	.35	.39
		9	7.0	.5	.72	1.18	.36	.42
		10	7.5	.5	.70	1.15	.35	.40
		11	8.0	.5	.70	1.16	.35	.41
		12	8.5	.5	.70	1.13	.35	.40
		13	9.0	.5	.70	1.01	.35	.35
		14	9.5	.5	.68	.90	.34	.31
		15	10.0	.5	.60	.96	.30	.29
		16	10.5	.5	.45	.83	.23	.19
		17	11.0	.5	.34	.37	.17	.06
		18	11.5	.5	.35	.03	.08	.01
		19	12.0	.5	.30	.01	.05	.01
		20	12.5	.5	.15	0	.06	.01
		21	13.0	.25	0	0	0	0
		22						
		23						
		24						
		25	10.5	10.5			5.31	4.12
		26						
		27						
		28						
		29						
		30						

Measurement rated excellent (2%), good (5%), fair (15%) poor (over 25%)



Big Springs, Snake Valley, Nevada
10/28/04 Discharge = 4.1 cfs

DISCHARGE MEASUREMENT NOTES				Section	Station	Width	Depth	Velocity	Area	Discharge
Station	Chokecherry Creek									
	Snake Valley, White Pine Co.	1								
Hydrologist	Bob Squires	2								
Date	10/28/04	3								
Time	14:00	4								
Width	—	5								
Velocity	—	6								
Discharge	0 cfs	7								
Method	—	8								
Meter	—	9								
Section	—	10								
Measurement method excellent (95% good (95%), fair (85%) poor (over 85%))		11								
Description of flow		12								
Description of cross-section		13								
Remarks	Channel was dry Approximate by 10 foot wide	14								
		15								
		16								
		17								
		18								
		19								
		20								
		21								
		22								
		23								
		24								
		25								
		26								
		27								
		28								
		29								
		30								

Channel was dry
Approximate by 10 foot wide

Measurement site:
Section 30, T11N, R70E



Chokecherry Creek, Snake Valley, Nevada
10/28/04 Discharge = 0.0 cfs



Lexington Creek, Snake Valley, Nevada
10/28/04 Discharge = 0.0 cfs



Big Wash, Snake Valley, Nevada
10/28/04 Discharge = 0.6 cfs

DISCHARGE MEASUREMENT NOTES



Snake Creek, Snake Valley, Nevada
10/28/04 Discharge = 2.3 cfs

DISCHARGE MEASUREMENT NOTES

	Sections	Station	Width	Depth	Rectil. Time	Velocity	Area	Discharge	
Station	Clear Creek Spring 6/2/64 White Pine Valley, Nevada B-6 Square					Time			
Hydrologist		1	.4.5	.45	0			0	0
Date	10/29/64	2	3.0	.5	.40	est		.08	.20 .02
Time	8:00	3	2.5	.5	.76	5	.39	.15	.38 .06
Width	12.0	4	4.0	.5	.82	15	.48	.33	.41 .14
Method	5 and 6 Sections	5	4.5	.5	.80	30	.43	.47	.40 .19
Meter	Avg	6	5.0	.5	.80	50	.44	.12	.40 .45
Description of flow	Flow was steady	7	5.5	.5	.86	60	.42	1.40	.40 .56
Description of cross section	Plane of block no shore ice	8	6.0	.5	.80	60	.40	1.63	.40 .65
Remarks	Measurement rated excellent (2%) good (5%), fair (15%), poor (over 25%)	9	6.5	.5	.90	60	.40	1.47	.45 .66
		10	7.0	.5	.88	60	.50	1.57	.44 .69
		11	7.5	.5	.78	60	.46	1.70	.39 .66
		12	8.0	.5	.80	60	.47	1.26	.40 .50
		13	8.5	.5	.80	50	.49	1.01	.40 .40
		14	9.0	.5	.70	60	.41	1.44	.35 .50
		15	9.5	.5	.76	60	.43	1.37	.38 .52
		16	10.0	.5	.70	50	.45	1.10	.35 .39
		17	10.5	.5	.70	50	.44	1.12	.35 .39
		18	11.0	.5	.60	40	.45	.88	.30 .26
		19	11.5	.5	.60	40	.44	.90	.30 .27
		20	12.0	.5	.60	30	.39	.77	.30 .23
		21	12.5	.5	.66	20	.40	.51	.33 .17
		22	13.0	.5	.62	10	.42	.46	.31 .08
		23	13.5	.5	.60	7	.40	.40	.30 .06
		24	14.0	.5	.30	est	.06	.15	.01
		25	14.5	.25	0	—	0	0	0
		26							
		27							
		28							
		29							
		30							

8.09 7.87

DISCHARGE MEASUREMENT NOTES			Sections	station	Width	Depth	Velocity	Area	Discharge
Station	Clear Creek + Spring Valley								
Altitude	Pne. Colony, about 612		1	1.5	.25	0	0	0	0
Hydrologist	Bob Squires		2	3.0	.5	.40	.01	.20	0
Date	10/29/64		3	3.5	.5	.76	.04	.38	.02
Time	8:45		4	4.0	.5	.62	.14	.41	.06
Width	12.0	Area	81	Velocity	Discharge	8.2 cfs			
Method	0.5 + 0.6	Sections	25						
Meter	Swan								
Measurement rated excellent (25), good (50%), poor (0%), poor (0%)									
Description of flow	Flow was steady								
Description of cross-section	gravel & rock		18	11.0	.5	.70	1.95	.35	.51
Remarks	No ice on stream		19	11.5	.5	.76	1.36	.38	.52
			20	12.0	.5	.70	1.06	.35	.38
			21	12.5	.5	.66	.58	.33	.19
			22	13.0	.5	.62	.28	.31	.09
			23	13.5	.5	.60	.10	.30	.03
			24	14.0	.5	.30	.04	.15	.01
			25	14.5	.25	0	0	0	0
			26						
			27						
			28	12.0					
			29						
			30						

measurement 2/2
for current meter check

8.09 8.42

DISCHARGE MEASUREMENT NOTES						Section	Station	Width	Depth	Velocity	Area	Discharge
Station	Clear Creek	Spruce Valley	County,	Nebraska	1	2.5	.25	0	—	0	0	0
Hydrologist	White Pine	County,	Nebraska	2	9.0	.5	.40	.25	.20	.01	0	0
Date	Bob Farnes	3	9.5	.5	.76	1/47	.11	.38	.04	0	0	0
Time	10/29/04	4	9.0	.5	.82	1/43	.37	.41	.15	0	0	0
Width	9:15	5	9.5	.5	.80	1/40	.56	.40	.34	0	0	0
Method	12.00	6	5.0	.5	.80	1/48	.38	.40	.55	0	0	0
Velocity	.5' 8 - 6	7	5.5	.5	.80	1/42	.58	.40	.63	0	0	0
Area	8.1	8	6.0	.5	.80	1/44	1.51	.40	.60	0	0	0
Section	1.0	9	6.5	.5	.90	1/48	1.88	.45	.62	0	0	0
Velocity	2.5	10	7.0	.5	.68	1/51	1.30	.44	.52	0	0	0
Area	2.5	11	7.5	.5	.78	1/42	1.58	.38	.62	0	0	0
Section	1.0	12	8.0	.5	.80	1/50	1.31	.40	.53	0	0	0
Velocity	2.5	13	8.5	.5	.80	1/49	1.14	.40	.46	0	0	0
Area	2.5	14	9.0	.5	.70	1/48	1.38	.35	.48	0	0	0
Section	1.0	15	9.5	.5	.76	1/53	1.45	.38	.48	0	0	0
Velocity	2.5	16	10.0	.5	.70	1/43	1.03	.39	.36	0	0	0
Area	2.5	17	10.5	.5	.70	1/43	1.02	.35	.36	0	0	0
Section	1.0	18	11.0	.5	.60	1/49	.90	.30	.37	0	0	0
Velocity	2.5	19	11.5	.5	.60	1/50	.87	.30	.37	0	0	0
Area	2.5	20	12.0	.5	.60	1/44	.76	.30	.33	0	0	0
Section	1.0	21	12.5	.5	.66	1/47	.48	.33	.16	0	0	0
Velocity	2.5	22	13.0	.5	.62	1/49	.34	.31	.07	0	0	0
Area	2.5	23	13.5	.5	.60	1/50	.35	.30	.05	0	0	0
Section	1.0	24	14.0	.5	.32	1/51	.03	.15	.01	0	0	0
Velocity	2.5	25	14.5	.5	0	—	—	—	0	0	0	0
Area	2.5	26	—	—	—	—	—	—	—	0	0	0
Section	1.0	27	—	—	—	—	—	—	—	0	0	0
Velocity	2.5	28	12.0	12.0	—	—	—	—	—	0.09	7.87	0
Area	2.5	29	—	—	—	—	—	—	—	0	0	0
Section	1.0	30	—	—	—	—	—	—	—	0	0	0

2.5% below measurement

DISCHARGE MEASUREMENT NOTES			Station	Station	Width	Depth	Velocity	Area	Discharge
station									
Leaven Creek									
White Pine County	1								
Bald Squares	2								
Hydrologist	3								
Date	4								
Time	10/29/04	10:22:22	10/29/04	10:22:22	6				
Width					6				
Area					6				
Velocity					6				
Discharge	0	ck	0		6				
Section					9				
Method					10				
Meter					11				
Measurement rated excellent (95), good (85), fair (65), poor (over 10%)					12				
Description of flow	NO. 102, NO. 2 in after				13				
Description of cross-section					14				
Remarks	Measurement site Section 12, T 14 N R 68 E				15				
	Drove 2 miles upstream from				16				
	measurement site, still				17				
	no water flows found.				18				
					19				
					20				
					21				
					22				
					23				
					24				
					25				
					26				
					27				
					28				
					29				
					30				



Weaver Creek, Snake Valley, Nevada
10/29/04 Discharge = 0.0 cfs

DISCHARGE MEASUREMENT NOTES			Section			Station	Width	Depth	Velocity	Area	Discharge
Station	Strawberry Creek, Snake Valley									0	0
White Pine Co., Nevada			1	2.3	.25	0	0				
Hydrologist	Bald Squares		2	2.8	.40	.30	.41	.12	.05		
			3	3.1	.30	.30	.69	.09	.06		
Date	10/29/04		4	3.4	.30	.33	.92	.10	.09		
			5	3.7	.30	.37	.97	.11	.11		
Time	11:05		6	4.0	.30	.40	.89	.12	.11		
			7	4.3	.30	.40	.69	.12	.08		
Width	4.2	Avg 1.32	Velocity	1	Discharge	0.8 cfs					
							8	.76	.40	.60	.12
Method	0.5 - 0.6	Sections	13				9	.49	.30	.40	.16
							10	.52	.30	.40	.14
Water	Swallow						11	.55	.40	.37	.15
							12	.60	.50	.30	.15
							13	.65	.25	0	0
Measurement rated excellent (2%), good (5%), fair (8%) poor (over 8%)			14								
Description of flow	E/2SW	water standing		15		4.2					
Description of cross-section	Cross section was gravel & rock			16							
Remarks	Measured at Humboldt National Forest Boundary			17							
				18							
				19							
				20							
				21							
				22							
				23							
				24							
				25							
				26							
				27							
				28							
				29							
				30							



Strawberry Creek, Snake Valley, Nevada
10/29/04 Discharge = 0.8 cfs

DISCHARGE MEASUREMENT NOTES							Sections				Station	Width	Depth	Velocity	Area	Discharge
Station	Baker Creek, Snake Valley White Pine Co., Nevada	1	1.5	.25	.25	.25					0	0	0	0	0	0
Hydrologist	Bob Squaw	2	2.0	.5	.30	.02					15	0				
Date	10/29/04	3	2.5	.5	.62	.05					31	.02				
Time	13:00	4	3.0	.5	.65	.00					33	.03				
Width	11.5	5	3.5	.5	.70	.29					35	.45				
Method	.5' q .6	6	3.5	.5	.70	.62					36	.12				
Velocity	5.8	7	4.5	.5	.54	2.00					37	.94				
Water		8	5.0	.5	.76	1.53					38	.60				
Method	.5' q .6	9	5.5	.5	.76	1.53					39	.17				
Sections	24	10	6.0	.5	.70	4.3					40	.12				
		11	6.5'	.5	.70	.60					41					
		12	7.0	.5	.60	.87					42	.26				
		13	7.5	.5	.60	.50					43	.15				
		14	8.0	.5	.54	.10					44	.21				
		15	8.5	.5	.54	.92					45	.11				
Description of flow	Flow sketchy - boulders resulted in clogging	16	9.0	.5	.50	.33					46	.08				
Description of cross-section	Sketch of boulders	17	9.5	.5	.50	.51					47	.13				
Remarks		18	10.0	.5	.54	1.49					48	.40				
		19	10.5	.5	.58	.58					49	.17				
		20	11.0	.5	.52	.30					50	.08				
		21	11.5	.5	.34	1.23					51	.21				
		22	12.0	.5	.26	.97					52	.13				
		23	12.5	.5	.22	.13					53	.01				
		24	13.0	.29	.10	0					54	0				
	Tail Head	25									55					
		26									56					
		27	11.5								57					
		28									58					
		29									59					
		30									60					

Measurement rated excellent (2%), good (5%), fair (15%) poor (over 3%)

Flow sketchy - boulders resulted in clogging

Sketch of boulders

Remarks

Section 22, T13N, R69E

Measured at Col Canyon
Tail Head



Baker Creek, Snake Valley, Nevada
10/29/04 Discharge = 3.9 cfs

DISCHARGE MEASUREMENT NOTES				Section	Station	Width	Depth	Velocity	Area	Discharge
Station	Lehman Creek, Snake 1/4 mile				1	.2.00	.1.3	0	0	0
Hydrograph	White Pine Co., Nevada				2	.2.25	.2.5	.15	.14	.4
	Bd. Square				3	.2.50	.2.5	.32	.22	.8
Date	10/29/64				4	.2.75	.2.5	.23	.40	.9
Time	14:00				5	.3.00	.2.5	.35	.51	.9
Width	6.00				6	.3.25	.2.5	.32	.66	1.0
Meter	5 ft. 6	Velocity	Discharge	2.3 cfs	7	.3.50	.2.5	.40	.94	1.0
Method	Sections 2.5				8	.3.75	.2.5	.48	.93	1.2
	9				9	.4.00	.2.5	.54	.90	1.4
	10				10	.4.25	.2.5	.54	.85	1.4
	11				11	.4.50	.2.5	.50	.60	.3
	12				12	.4.75	.2.5	.55	.66	.4
	13				13	.5.00	.2.5	.60	.72	.5
	14				14	.5.25	.2.5	.62	.74	.6
Description of flow	Measurement rated excellent (95%), fair (85%), poor (over 85%)				15	.5.50	.2.5	.66	.74	.7
Description of cross-section	Flow velocities uncontrolled				16	.5.75	.2.5	.60	1.10	1.5
	Rock and boulders				17	.6.00	.2.5	.50	1.22	1.3
Remarks	Site on Great Basin Park Measured above culvert at road to below Caves.				18	.6.25	.2.5	.45	1.30	1.1
	Section 10 , T 3 N, R 69 E				19	.6.50	.2.5	.35	1.35	0.9
	Section 10 , T 3 N, R 69 E				20	.6.75	.2.5	.45	1.50	1.1
	21				21	.7.00	.2.5	.55	1.74	1.4
	22				22	.7.25	.2.5	.40	1.28	1.0
	23				23	.7.50	.2.5	.30	.49	.08
	24				24	.7.75	.2.5	.30	1.93	.06
	25				25	.8.00	.2.5	0	0	0
	26				26					
	27				27					
	28				28					
	29				29					
	30				30					

2.58 3.32



Lehman Creek, Snake Valley, Nevada
10/29/04 Discharge = 2.3 cfs

DISCHARGE MEASUREMENT NOTES

Station	Sections	Station	Width	Depth	Velocity	Area	Discharge
Civic Creek, Spring Valley, NV							
Hydrologist		1	2.0	.25	0	0	0
Bob Squires		2	2.5	.5	.30	0	0
		3	3.0	.5	.20	.06	.35
Date		4	3.5	.5	.70	.03	.02
11/30/04		5	4.0	.5	.72	.57	.34
Time		6	4.5	.5	.92	.94	.21
6:36		7	5.0	.5	.62	1.59	.41
Width	12.5	8	5.5	.5	.84	1.95	.57
Area	81	9	6.0	.5	.80	1.50	.60
Method	0.5' 0.6'	10	6.5	.5	.80	1.61	.64
	Sections 26	11	7.0	.5	.76	1.52	.58
Motor	Swallow	12	7.5	.5	.86	1.39	.40
		13	8.0	.5	.92	1.20	.41
Measurement noted excellent (25% good) total (5%), poor (over 5%).		14	8.5	.5	.74	1.35	.37
		15	9.0	.5	.74	1.38	.37
Description of flow	<i>Even velocity across section</i>	16	9.5	.5	.70	1.18	.35
		17	10.0	.5	.68	1.07	.34
Description of cross-section	<i>rock and gravel/</i>	18	10.5	.5	.62	.86	.31
		19	11.0	.5	.62	.83	.31
Raindrops		20	11.5	.5	.62	.79	.24
		21	12.0	.5	.62	.62	.19
		22	12.5	.5	.60	.53	.16
		23	13.0	.5	.52	.44	.11
		24	13.5	.5	.45	.21	.05
		25	14.0	.5	.25	.18	.02
		26	14.5	.25	0	0	0
		27					
		28					
		29	12.5	12.5		8.65	7.95
		30					

DISCHARGE MEASUREMENT NOTES

		Sections	Station	Width	Depth	Velocity	Area	Discharge
Station	Silver Creek, Snake Valley							
White Pine Co., Nevada	1	2.00	.13	0	0	0	0	0
Hydrologist	2	2.25	.25	10	0	.23	0	0
Bob Squires	3	2.50	.25	20	.04	.05	0	0
Date	10/29/04	4	2.75	.25	.30	.09	.08	.01
Time	16:00	5	3.00	.25	.68	.10	.10	.01
Width	5.5	6	3.25	.25	.50	.12	.13	.02
Methed	.5 ft. 6	7	3.50	.25	.58	.15	.15	.02
Method	2.2 Velocity 2.6 Discharge	8	3.75	.25	.68	.14	.15	.02
Meader	Scaldee	9	4.00	.25	.60	.11	.15	.01
Measurement rated excellent (2%), good (5%), fair (15%), poor (over 5%)	10	4.25	.25	.55	.16	.14	.15	.02
11	4.50	.25	.50	.15	.13	.13	.13	.02
12	4.75	.25	.46	.16	.12	.12	.12	.02
13	5.00	.25	.44	.17	.11	.11	.11	.02
14	5.25	.25	.50	.10	.13	.14	.14	.02
15	5.50	.25	.60	.13	.15	.15	.15	.02
Distortion of flow	under rocks - caused by boulders	16	5.75	.25	.55	.39	.14	.05
Distortion of cross-section	Rock, sand, boulders	17	6.00	.25	.60	.34	.15	.05
Measured approximately 2 miles upstream from Forest Boundary		18	6.25	.25	.43	.23	.11	.02
Remarks	Section 15, T13N, R70E	19	6.50	.25	.34	.11	.09	.01
		20	6.75	.25	.25	.09	.06	.01
		21	7.00	.25	.15	.05	.04	.01
		22	7.25	.25	.10	.03	.03	.01
		23	7.50	.12	0	0	0	0
		24						
		25						
		26						
		27						
		28						
		29						
		30						

2.18 1.33



Silver Creek, Snake Valley, Nevada
10/29/04 Discharge = 1.3 cfs

DISCHARGE MEASUREMENT NOTES

				Section	Station	Width	Depth	Velocity	Area	Discharge
Station	Hendrys Creek, Snake Valley									0 0
Hydrologist	Bob Squier			1	2.50	.45	0	0	0	0
Date	10/30/04			2	3.00	.50	.45	.02	.23	0
Time	10:30			3	3.50	.38	.50	.07	.19	.01
Width	8.0	Area	3.2	Velocity	6.4	Discharge	1.26			
Method	S 1.6	Sections	26			9	5.00	.25	.55	.03
Meter	Surfline			10	5.45	.25	.55	1.05	.14	.04
				11	5.50	.25	.40	.71	.10	.07
				12	5.75	.25	.35	1.08	.09	.09
				13	6.00	.29	.64	.80	.17	.16
				14	6.25	.15	.62	.71	.16	.11
				15	6.50	.29	.60	.64	.15	.10
Description of flow	velocit.y's clean			16	6.75	.29	.54	.50	.14	.07
Description of cross-section	gravel and rock			17	7.00	.25	.48	.34	.12	.04
Remarks	Sect 2, 7, 16 w, & 70 ft			18	7.25	.25	.46	.20	.12	.02
				19	7.50	.29	.46	.08	.12	.01
				20	7.75	.25	.44	.06	.11	.01
				21	8.00	.29	.44	.04	.11	0
				22	8.25	.25	.40	.04	.10	0
				23	8.50	.37	.38	.02	.14	0
				24	9.00	.50	.20	.02	.10	0
				25	9.50	.25	.10	0	.08	0
				26	10.50	.50	0	0	0	0
				27						
				28						
				29						
				30	8.00	8.00			3.23	.25



Hendrys Creek, Snake Valley, Nevada
10/30/04 Discharge = 1.2 cfs

DISCHARGE MEASUREMENT NOTES								Sections			Station	Width	Depth	Velocity	Area	Discharge
station	Hampton Creek, Snake Valley				1	1.00	.15	0	0	0						
white Pine County, Nevada					2	2.10	.30	.20	.01	.06						
Hydrologist					3	2.40	.30	.20	.03	.06						
Date	10/30/04				4	2.70	.30	.45	.40	.08						
Time	11:30				5	3.00	.30	.20	1.94	.06						
Width	1.50	Avg.	.26	Velocity	8	0.2	cfs	8	1.5	1.5						
Meter	a5	Section	6					9	1.5						.26	.20
Method								10								
Meter								11								
Measurement rated excellent (95), good (80), fair (65), poor (over 80)								12								
Description of flow	<i>Flowing waterlines in only 2 sections</i>							13								
Classification of cross-section	<i>Rapid and gradual</i>							14								
Remarks	<i>Two bridges told me that there was no flow in the creek 1.5 to 2 miles further upstream.</i>							15								
								16								
								17								
								18								
								19								
								20								
								21								
								22								
								23								
								24								
								25								
								26								
								27								
								28								
								29								
								30								

Site: Section 15, T16N, R7W



Hampton Creek, Snake Valley, Nevada
10/30/04 Discharge = 0.2 cfs

DISCHARGE MEASUREMENT NOTES

Station	Sections	Station	Width	Depth	Velocity	Area	Discharge
Smith Creek, Snake Valley, White Pine County Bob Squares	1 2 3 4 5 6 7						
Date	10/30/04						
Time	12:30						
Width	—	Area	—	Velocity	—	Discharge	0
Method	—	Sections	—	—	0.6	8	9
Meter	—			—	—	10	11
Measurement rated excellent (100%), good (75%), fair (50%), poor (over 8%)					12	13	14
Description of flow					15	16	17
Description of cross-section	gravel & rock				18	19	20
Remarks	Measurement site was at Natural Forest Boundary. East end of Section 15, T17N, R70E.					21	22
						23	24
						25	26
						27	28
						28	29
						30	30

Road 13 closed to motor vehicles $\frac{1}{2}$ mile upstream.
 There were patches of
 chayen and sand there
 were no trees in upper
 reaches.



Smith Creek, Snake Valley, Nevada
10/30/04 Discharge = 0.0 cfs



Marble Wash, Snake Valley, Nevada
10/30/04 Discharge = 0.0 cfs

DISCHARGE MEASUREMENT NOTES

		Sections	Station	Width	Depth	Velocity	Area	Discharge
Station	Swan Creek abv Devil's Gate							
Hydrologist	4th & Pine County, Nevada	1						
Date	10/30/64	2						
Time	1500	3						
Width		4						
Area		5						
Velocity	0.43	6						
Discharge		7						
Method	Sections	8						
Notes		9						
Measurement rating	Excellent (2%), good (6%), fair (8%), poor (over 8%)	10						
Description of flow	no flow	11						
Description of cross-section	Sand channel	12						
Remarks	This is an amazing drainage.	13						
	The road is 196' to 200' wide	14						
	with side walls of 25'-45'.	15						
	Devil's gate is 1' to 5' in width	16						
	I would have to swim this during	17						
	a flood.	18						
	A person could walk through the gate.	19						
	Section 28 T 19 N, R 70 E,	20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						



Swan Creek, Snake Valley, Nevada
10/30/04 Discharge = 0.0 cfs

DISCHARGE MEASUREMENT NOTES									
			Section	Station	Width	Depth	Velocity	Area	Discharge
Station	<i>Wash Springs, Snake Valley</i>								
Hydrologist	Bob Squires								
Date	10/30/64								
Time	17:00								
Width	6.5	Area	6.0	Velocity	2.5	Discharge	15.0		
Method	.51.6			Sections	14				
Near	Sect 11, 2								
Measurement rated excellent (25), need (5%) fair (8%) poor (over 5%)									
Discharge of flow	<i>Even velocities</i>								
Discharge of cross-section	<i>Measurement made in concrete enclosure to diversions bldg</i>								
Remarks									
	18	19	20	21	22	23	24	25	26
	20	21	22	23	24	25	26	27	28
	22	23	24	25	26	27	28	29	30



Warm Springs, Snake Valley, Utah
10/30/04 Discharge = 15.0 cfs

DISCHARGE MEASUREMENT NOTES

		Sections	Station	Width	Depth	Velocity	Area	Discharge
Station	Buck Creek, Snake Valley, Twp C 4th & Deep Creek Mtn Range	1	2.50	.13	0	0	0	0
Hydrologist:	Bob Squires	2	2.75	.25	.10	.65	.03	.01
Date	10/31/64	3	3.20	.25	.20	.52	.05	.03
Time	8:30	4	3.25	.25	.22	.80	.06	.04
Width	5.0	5	3.50	.45	.24	1.09	.06	.07
Method	1.3 and .6	6	3.75	.45	.32	1.60	.08	.13
Meter	Swanee	7	4.00	.45	.38	2.13	.10	.20
Description of cross-section	21	8	4.25	.25	.36	1.94	.09	.17
Description of flow		9	4.50	.25	.36	1.75	.09	.16
Remarks	measured just above confluence with Trout Creek	10	4.75	.25	.34	1.80	.09	.15
		11	5.00	.25	.32	1.86	.08	.15
		12	5.25	.25	.36	1.63	.09	.15
		13	5.50	.25	.38	1.94	.10	.21
		14	5.75	.25	.36	1.82	.09	.17
		15	6.00	.25	.34	2.25	.09	.22
		16	6.25	.25	.32	.30	.08	.02
		17	6.50	.45	.30	.23	.08	.02
		18	6.75	.25	.32	.19	.06	.01
		19	7.00	.25	.15	.08	.04	0
		20	7.25	.25	.08	0	.02	0
		21	7.50	.12	0	0	0	0
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						



Birch Creek, Snake Valley, Utah
10/31/04 Discharge = 15.0 cfs

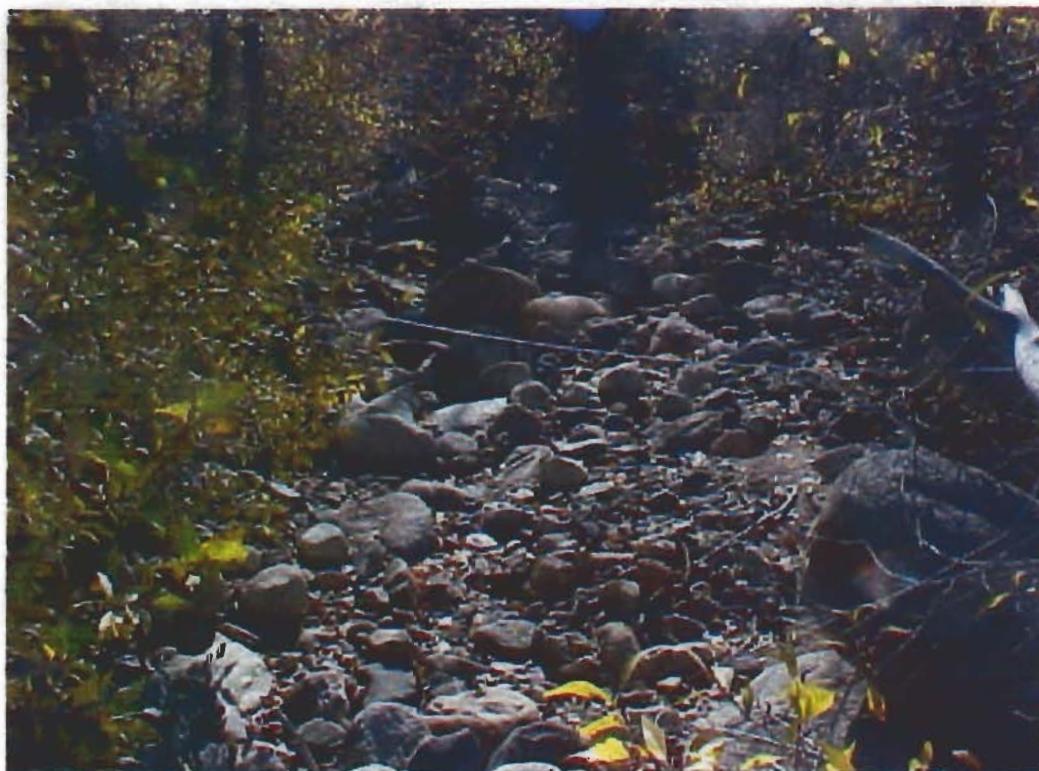
DISCHARGE MEASUREMENT NOTES									
Station	Sections	Station	Width	Depth	Velocity	Area	Di-		
Tent Creek, Snake Valley, Oregon		1	5.00	.13	0	0	0		c
Mountain Range, Twin Cr., Wyo.		2	5.25	.25	.05	.05	.01		c
Bad Squeeze		3	5.50	.25	.10	.12	.03		0
		4	5.75	.25	.15	.30	.04		
Date		5	6.00	.25	.20	.32	.05		
Time	9:00	6	6.25	.25	.16	.10	.04		
Width	2.5	7	6.50	.25	.14	.90	.04		
Area	0.2	8	6.75	.25	.10	.49	.03		
Velocity	1.0	9	7.00	.37	.05	2.03	.02		
Discharge	1.0	10	7.50	.25	0	0	0		
Method	.5	11							
Marker	Swallow	12							
		13	2.50						
Measurement rated excellent (2%), good (6%), fair (22%), poor (over 5%)		14							
Description of flow	Flow across Bank	15							
Description of cross-section	Concrete "U" shaped channel	16							
Rammetts	Measured just upstream from confluence with Rock Creek	17							
		18							
		19							
		20							
		21							
		22							
		23							
		24							
		25							
		26							
		27							
		28							
		29							
		30							



Trout Creek, Snake Valley, Utah
10/31/04 Discharge = 1.0 cfs

DISCHARGE MEASUREMENT NOTES

	Section	Station	Width	Depth	Velocity	Area	Discharge
Station							
Granite Creek, Snake Valley, Deep Cr.	1						
Mtn Range, Tooez Co., Nevada	2						
Bed Spumes	3						
Date	4						
10/31/64	5						
Time	6						
10:15	6						
Width	7						
Area	8						
Velocity	9						
Discharge	10						
Method	11						
Meter	12						
	13						
	14						
Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%)	15						
Description of flow	16						
Description of cross-section	17						
Remarks	18						
Channel dry at measurement point.	19						
Channel base width is 10'.	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						
	30						



Granite Creek at Mtn Front, Snake Valley, Utah
10/31/04 Discharge = 0.0 cfs

DISCHARGE MEASUREMENT NOTES

	Station	Sections	Station	Width	Depth	Velocity	Area	Discharge
Station	Granite Creek, Snake Valley, Deep R.	1	3.20	.13	0	0	0	0
Mtn Range.	Tuohy Mts	2	3.49	.15	.05	.15	.01	0
Bob Squares	3	3.70	.15	.10	.31	.03	.01	
Date	4	3.95	.15	.18	.52	.05	.02	
	5	4.20	.15	.24	.73	.06	.04	
Time	6	4.45	.15	.30	.10	.08	.03	
	7	4.70	.15	.34	.51	.09	.03	
Width	8.0	Area	0.6	Velocity	0.7	Discharge		
	9	5.20	.15	.30			.08	.12
Method	10	5.45	.15	.23			.07	.11
	11	5.70	.15	.20			.05	.07
Meter	12	5.95	.15	.10			.03	
	13	6.20	.12	0			0	0
Measurement related upstream (20), good (95). Off (10%) over (over 95)	14							
Description of flow	15							
Description of cross-section	16							
Remarks	17	3.0	3.0					
	18							
	19							
	20							
	21							
	22							
	23							
	24							
	25							
	26							
	27							
	28							
	29							
	30							

Flow velocity even

soil & gravel

Measurement made 0.7 mile upstream from main branch.
 Branch is probably diverging
 from main creek the meadow
 is some part between this
 3.6 and mountain bank.



Granite Creek 0.7 mi. upstrm of Mtn Front, Snake Valley, Utah
10/31/04 Discharge = 0.7 cfs

DISCHARGE MEASUREMENT NOTES

		Section	Station	Width	Depth	Velocity	Area	Discharge
Station	Indian Fork Canyon Creek, Tuolumne Co.	1	2.5	.25	0	0	0	0
Method	Hydrograph Bath Squares	2	3.0	.50	.05	.08	.03	0
Hydrograph		3	3.5	.50	.07	.16	.04	.01
Date	10/31/64	4	4.0	.50	.10	.23	.05	.01
		5	4.5	.50	.15	.34	.08	.03
Time	12:00	6	5.0	.50	.18	.39	.09	.04
		7	5.5	.50	.20	.42	.10	.04
Width	11.0	Avg	1.8	Velocity	.9	Discharge	1.5 cfs	
Method	0.5	Sections	23	0	6.0	.50	.22	
Meter	Sweller	1	6.5	.50	.24	1.13	.12	
		2	7.0	.50	.24	1.13	.12	
		3	7.5	.50	.24	1.12	.12	
		4	8.0	.50	.24	1.12	.12	
		5	8.5	.50	.20	1.45	.10	.15
		6	9.0	.50	.20	1.40	.10	.14
		7	9.5	.50	.18	1.33	.09	.12
		8	10.0	.50	.15	1.23	.08	.09
		9	10.5	.50	.15	1.13	.08	.08
		10	11.0	.50	.15	1.05	.08	.08
		11	11.5	.50	.15	.96	.08	.06
		12	12.0	.50	.18	.85	.08	.08
		13	12.5	.50	.15	.76	.08	.06
		14	13.0	.50	.10	.65	.09	.06
		15	13.5	.50	.10	.57	.10	.06
		16	14.0	.50	.10	.46	.05	.01
		17	14.5	.50	.10	.36	0	0
		18	15.0	.50	.10	0	0	0
		19	15.5	.50	.15	0	0	0
		20	16.0	.50	.18	0	0	0
		21	16.5	.50	.20	0	0	0
		22	17.0	.50	.10	0	0	0
		23	17.5	.25	0	0	0	0
		24						
		25						
		26						
		27	11.0	11.0			1.86	1.79
		28						1.53
		29						
		30						

Measurement rated excellent (95%), good (85), fair (70) poor (over 8%)

even velocities

Description of cross-section sand and gravel

Remarks

Measurement made at
road by Calileo Computer



Indian Farm Canyon Creek, Snake Valley, Utah
10/31/04 Discharge = 1.5 cfs